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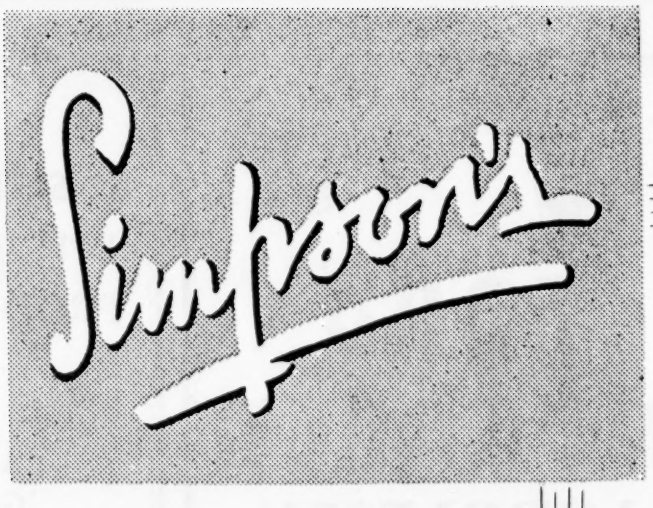

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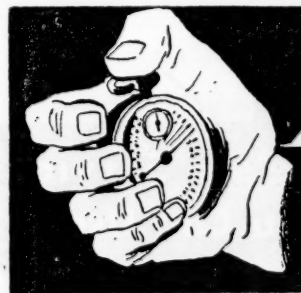

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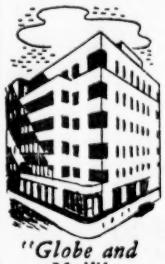

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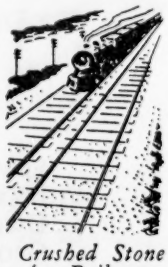

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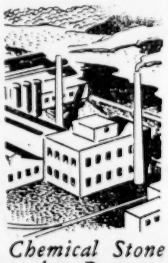

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THE
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Atomic Energy Gets to Work

P. J. Stewart

With potentially large supplies of uranium and other radioactive metals in their own backyard, Canadians will be anxious to read a report concerning the industrial uses of radioactive isotopes. Dr. Stewart, the author, who was formerly employed by the British Ministry of Supply as an atomic research specialist, assisted in the formation of Isotope Products Limited, the only Canadian company especially established to work on applications of atomic research to industry, and is at present connected with that firm.

A TREATMENT of atomic energy, that is the energy locked up inside atoms, as a source of industrial power is beyond the scope of this discussion, even though considerable work is being carried on in this field at the moment. The United States Atomic Energy Commission has one experimental nuclear reactor developing power and is vigorously pushing programs to produce submarines and aircraft propelled by atomic energy. The nuclear reactor at the Atomic Energy Research Establishment at Harwell, England (Beppo, as it is called) is used to heat the building in which it is housed, but it is a remarkably expensive way of heating a building, even in view of the British fuel shortage. However, these are all research projects and may not make their mark on modern technology for twenty years or more.

Likewise, atomic research has had a tremendous effect upon pure science of all sorts. From mathematics to medicine there is scarcely a field which has failed to benefit, and in medicine particularly, radioactive "tracer" materials have accomplished a revolution which has been described as more important than the discovery of the microscope.

Sources of Radioactive Materials

The following discussion, on the other hand, will be confined to the industrial uses of radioactive isotopes, which may be called the by-products of atomic research. Radioactive isotopes are generally made in a nuclear reactor, such as the Canadian pile at Chalk River. A reactor is best visualized as a large furnace. It uses uranium for fuel and instead of heat rays, it contains atomic fragments that are called neutrons. Concrete walls around the outside prevent the neutrons from escaping. Anything placed in the reactor "hots up"; that is, it absorbs neutrons. In the great majority of cases, a chemical put into the reactor will "hot up" and come out as exactly the same chemical—with one significant difference; when it comes out, it will be radioactive.

Radioactive materials emit rays, rather in the same way that a light bulb emits light. These rays are not usually visible, as light is. However, a very great number of them may emit an eerie blue glow. I have never seen this myself, but it made an impressive photograph in a picture story covering the subject in *Life Magazine*. The rays from radioactive materials cannot be felt. They do not heat things up and they produce no immediate sensation on the skin. However, in spite of the fact that they cannot be detected by the body, they are extremely powerful. They can produce physiological effects; they can produce chemical and physical change; and most important of all, they can penetrate materials.

Before leaving the subject of nuclear reactors let us extend the furnace analogy a little further. When the uranium fuel burns, it leaves an "ash", which we call fission products. These have to be extracted from the reactor regularly, and they comprise a wide range of twenty-five or so chemical elements, all of them highly radioactive. In running a normal reactor, very large amounts of radioactivity are regularly produced as fission products, and these are largely waste products. They are not, however, normal waste products which can be dumped in a slag heap somewhere; these fission products are radioactive and potentially very dangerous and have to be stored under feet of earth or behind feet of concrete. Normally they are extracted in solution and stored in large underground acid-proof tanks.

Thus fission products represent a second source of radioactive materials. You cannot attain quite such a wide range of radioactive materials from fission products as you can by irradiation or "hotting up" in the pile, but they do represent a potential source of very large quantities of activity. Also the fact that they are waste products makes their utilization commercially very attractive.

Atomic Radiations

Of primary interest here are the rays from radioactive materials. These are divided into two main groups, beta rays and gamma rays. Beta rays are streams of small atomic particles — electrons — while gamma rays are rays rather similar to X-rays. The main difference between the two lies in their penetrating power. Beta rays will not penetrate any more than a very thin layer; some of them will be completely stopped by a single layer of tissue paper, while the most energetic are stopped by thick cardboard. However, gamma rays are much more penetrating, and in some cases they can still be detected coming through twelve inches or more of steel. Consequently, by the proper choice of radiation, either beta or gamma, a wide range of materials may be penetrated.

Let us put a source of beta radiation on one side of a sheet of paper and a detector of radiation on the other side. A certain amount of the radiation will be stopped by the paper as it passes through, and the greater the thickness of the paper, the greater will be the amount stopped. Thus if you pass a sheet of paper of varying thickness between the source and the detector, the reading of the detector will tell you the thickness of the sheet at any given point. Upon consideration of the number of materials which are used commercially as thin sheets, such as metal foil, paper, rubber, plastics, and textiles, the potential industrial importance of this principle becomes readily apparent. Since in these industries material costs are generally a very large proportion of total manufacturing costs, control of thickness is very valuable.

The Use of Guages in the Mill

Several types of gauges operating in this way have been designed and produced. In most cases they are continuously operating instruments, generally complete with chart recorders for mounting directly on mills. Remarkable accuracy can be achieved with these instruments. For example,, it has been possible to measure variations in the thickness of aluminum foil of as little as one millionth of an inch without any trouble. The gauges make no physical contact with the sheet, and sheets can be run through them at any speed without damage to the product.

Such instruments are actually measuring the mass per unit area of the sheet, which is a combination of the density and the thickness of the material. Now every material has a density; it is not a factor, such as the dielectric constant or susceptibility to magnetic force, which alters greatly from one material to the next. For example, if you have a gauge measuring aluminum foil, the same gauge can be moved into a paper mill and will still function just as well and with the same degree of accuracy. Similarly a gauge measuring the thickness of dry paper may be taken to the other end of the paper machine and used to measure the thickness of wet paper. This factor is of great importance when it comes to using such a gauge to control the thickness of paper by the continuous adjustment of such factors as roll pressure or consistency of the paper pulp.

There are a number of types of this gauge, but a description of one modification of the instrument should serve to illustrate its usefulness. Much rubber is used in making tires, and since it is an expensive commodity, control of the amount used becomes most important. Tires are extruded from presses, and a gauge which measures the tire tread just as it leaves the extrusion die has been developed. This gauge scans to and fro over the tire tread and measures the thickness at all points across it. In fact it draws the profile of the tire tread continuously on a chart as well as measuring the thickness at all points.

Strictly speaking, I am anticipating a little in mentioning this gauge, as it employs not beta radiation but gamma radiation. Some beta rays would go through the thinner sections of the tire tread, but since none of them would have enough energy to go through the thicker sections, the more penetrating gamma rays must be used. In this field, substantially the same instrument can be used with a radioactive source emitting either beta or gamma rays, so that the whole range, from a sheet of tissue up to several inches of steel, can be covered. Thickness gauges, all using gamma radiation, have been designed for use on steel strip, on rockwool insulating sheet, on heavy building board, etc. About the only appreciable difference to the eye between this sort of gauge and one using beta rays is that a gamma gauge has a large block of lead attached to it. Both beta and gamma rays are potentially dangerous and have to be kept away from people. Beta rays can be shielded completely with a thin metal sheet, but for shielding the more penetrating gamma rays something a little more substantial must be used.

The Measurement of Open Containers in the Field

So far the measurement of sheet material in the mill has been discussed. For thicker steel sheets, however, measurement in the field is just as important as measurement in the mill. Typical of such measurement is the assessment of corrosion in pipes and tanks, which is a major problem in many industries: the oil, chemical, and paper industries among others. In this case gamma rays may be used. Consider the measurement of the extent to which pulp digesters have corroded in operation. Pulp digesters are large pressure cookers in which wood chips are cooked up with a variety of unpleasant chemicals. They are moderately large—often fifty feet high—and quite subject to wear. To see how much they have worn, a large source of gamma rays is lowered down inside, such that it is in the centre of the digester. A detector can then be moved around the outside to record the wall thickness directly at all points. Temperature has absolutely no effect on radioactivity; so this investigation can be carried out while the digester is still hot. This method represents a great saving in time over all other methods, which involve cooling the digester and sending a man inside.

The Measurement of Closed Containers

A different problem arises in the measurement of completely closed tanks, pipes and other small plant units into which it is not possible to get a source of gamma rays. In these cases a different principle for measuring the wall thickness is used. As noted above isotopes emit radiation in the same way that a light bulb emits light. Light, of course, can be reflected. All materials except those which are completely black reflect a certain amount of light. Radiation can be reflected as well, and if a beam of gamma rays hits a material, some of it always finds its way directly through, while the remainder of it is reflected in all directions. Because of the penetrating nature of gamma rays, this reflection occurs not only at the surface of the material but from deeper layers as well. Thus the more material you have, the less radiation will go straight through and the more will be reflected back.

To measure this reflected radiation the detector is placed next to the gamma ray source. Of course, if you do only that, a great blast of radiation direct from the source is registered by the detector. However, if a block of lead is placed between the two, then the detector will pick up only the reflected radiation, which is proportional to the thickness of the nearby sheet. Hence, in a production instrument a gamma ray source, a block of lead, and a detector are incorporated in a single head, and this head can be

run over the outside of the tank or pipe to be measured. In this way the wall thickness of any plant unit can be measured; in some cases, while it is in service. We have modified this basic design by setting both the source and detector at the end of long slots in the head for use on lagged pipes and tanks. The rays look right through the lagging and measure the steel wall inside. A steel wall about ¾" thick can be measured to as accurately as 1%.

Determination of Liquid Level

The more material, the more reflection—so if a large amount of liquid faces the head, considerable radiation will be reflected by it. This is the principle incorporated in an instrument for measuring liquid level inside closed tanks. An instrument with a head similar to that described above is used, and the rays therefrom penetrate the wall of a tank and tell, by measuring the amount of radiation reflected, whether or not there is liquid in the tank. The head is placed against an empty portion of the tank, adjusted, and then drawn slowly down the tank. When it hits the liquid level, an alarm will sound, and the level can be determined to within an eighth of an inch. Liquid chlorine manufacturers who have to seal their tanks in case anything gets out, brewers who have to seal their tanks in case anything gets in, or any manufacturer who does not relish crawling around on top of tanks with a dipstick or sounding them out by tapping with a hammer find a level gauge which operates entirely external to the tank very attractive.

Radiography

Just as gamma rays can "look through" the walls of tanks, so can they "see" that at which they are looking. All radiations will affect photographic film, from light rays to beta and gamma rays. X-rays have been used, of course, for many years to reveal the inner structure of things, notably of the human body. When radium was discovered, it was used quite extensively for this sort of work as well, mostly for examination of the structure of metallic objects. Nowadays research in atomic energy has led to the use of many more isotopes, which have almost entirely superseded radium. Today one can pick the radioactive isotope appropriate for any given job of radiographic inspection in the field of metals—one isotope for light metals, another for welds and smaller steel castings, another for heavy castings, and so on.

Typical of these isotopes is one which was mentioned in newspaper articles recently—sodium^{24}. This was recently used in taking a photograph through twleve inches of steel. No X-ray equipment attains anywhere near this range, and only this one isotope

is powerful enough to do the job. However, it has one significant drawback; its radioactivity weakens very quickly, and in just one day decreases by almost a factor of four. Consequently, it had to be hurried out of the atomic pile, rushed down by special truck and utilized at once. However, we were able with its use to take some interesting and unusual photographs.

Unlike most of the gauges which have been described, radiography can use quite large amounts of radioactivity. The source of sodium used in the above situation was so "hot" that a ton and a quarter block of lead was needed in order to carry it about safely, even though it was only about the size of one's thumb. The small size of these radiography sources is of great value in many applications, as they can be placed in all sorts of odd corners. For instance, they can be taken into shipyards for inspection of welded hulls, they can be inserted into the barrels of guns, and they can be run along inside pipe lines under construction to take photographs of the seams. Finally, they are generally quite inexpensive as compared to other inspection methods.

Since radiography uses quite large sources, it could provide a use for some of the "fission products", those waste materials from nuclear reactors mentioned earlier. In particular, some of them might be used for medical radiology, which would provide a vastly expanded field for their use. A group has recently been commissioned by the U.S. Atomic Energy Commission to make a study of the large scale industrial uses of radioactivity, and radiography proved to be one of the most important of these, although so many other uses were suggested that a whole new branch of technology appears to be growing up, and growing surprisingly rapidly.

Future Uses

Quite a number of these suggested uses, like the harnessing of atomic energy to produce useful power, still lie in the distant future. However, many universities, research groups, and industries are working on various aspects of these projects, and some quite promising results are being obtained in fields as far apart as logging oil wells and sterilizing beer. The general field of pasteurization and sterilization of foods has been the subject of many investigations. Milk has been kept fresh and unaltered in taste for thirty days after exposure to gamma radiation. The control of insects in grain is another example of the biological use of radiation. Also, it may well be possible to use the ionizing power of radiation, for example, in such industrial applications as the large scale removal of static electricity in flour milling. Closely

akin to this ionizing effect is the use of large quantities of radioactivity for initiating and promoting chemical change, for taking the place of the catalysts that play such an important part in the oil industry and in the production of plastics and dyes.

These few examples should serve to show that radioactivity has just started to make its mark on industrial practice. Nevertheless, that it *has* started is significant; that only six years after the first atom bomb, many peaceful and constructive applications have been devised and put into operation is encouraging. Let us hope that Canada, the possessor of the world's most powerful nuclear reactor, will be able to lead the way in the development of this significant branch of modern technology.

The Case for Industrial Recreation

Earle F. Zeigler

In this article, the background, steps in formation, problems, and ultimate benefits of an adequate and successful industrial recreation program are presented by Dr. Zeigler, who is Professor and Head of the Deparment of Physical, Health, and Recreation Education at the University of Western Ontario.

MARKED changes in the Canadian economy have taken place in the past fifty years. The manufacturing industry has grown to the point where, in Ontario alone, it supplies the largest proportion of the wealth, and figures show that over one-third of the labour force receives employment through these means in this province.

The status of workers in industry has also changed during this time. The public gradually developed a social conscience and saw to it that legislation was passed to improve the worker's safety and health. Management has become increasingly responsible for the lives of the individuals who make up the working forces of the various industries. With this growing concept of the worth of the individual has come a realization that sound job performance depends on more than training, skill, and facilities with which to work. What the employee does in his leisure hours has a great deal to do with his daily job proficiency.* The idea in some cases is extending so that industry takes a definite interest in seeing that a particular community is a healthy and wholesome place in which to live.

It is interesting to note that certain changes have taken place insofar as the workers and their relationships are concerned. In smaller industries there has been ample opportunity for the worker to be an individual with creative leanings. With the development of larger industries and assembly lines to speed up production, many people became part and parcel of a huge operation with resultant loss of individual identity.

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* Indebtedness must be expressed to the Community Programmes Branch, Department of Education, Toronto, for their excellent survey report *Recreation in Industry,* published in 1951.

Although the worker has gained in many ways such as in earning power and in length of the working day, and also feels more socially secure, a number of other problems have arisen. The gap has widened between employer and employee as well as among the employees themselves. Perhaps a greater problem has been the resultant inability of the individual to gain recognition, which is an important part of his personal development.

Background and Present Status

Industrial recreation has a history already. The United States and Great Britain, as well as Canada, recognized this need many years ago. Large companies established subsidiaries in Canada, and these branches usually followed the practice of the home office in this respect. The T. Eaton Company Limited, of Canadian origin, hired a recreation director about the time of World War I.

Following the adage of the "ill wind", the two global wars rendered a great service to the recreation movement in industry. The influx of war workers, where essential industries were in operation, made necessary the establishment of many organized recreation programs. (This author recalls supervising a swing shift workers' mixed swim at 3:30 A.M. during the past war.)

In the United States, over twenty thousand companies are spending an aggregate of $450,000,000 yearly to provide recreational opportunities for their employees, which is more than twice as much as they were spending only three years ago. Operating costs in Ontario alone for industrial recreation have reached the $2,500,000 mark each year. Why is the trend in the direction of developing recreation in industry? How can an industrial recreation program be developed? What problems are likely to arise? These are but a few of the questions which come to mind.

The Value of Industrial Recreation

Industrial recreation is not something unique. It consists basically of the same activities as those comprising any other recreation program. It should be conceived as a phase of the broader field of community recreation similar to the area of church recreation. Ideally, industrial and community recreation should be indivisible.

To learn about recreation in Ontario industry, the Community Programmes Branch of the Department of Education conducted a survey of employee recreation programs in manufacturing industries in Southern Ontario. In connection with this inquiry, literature on the subject was gathered and a working bibliography was developed. The main task was the organization of a questionnaire which was sent to 1,040 firms. Questionnaires of a different type were sent also to 49 municipal recreation directors. Finally, a number of personal interviews were conducted.

In all, a 45 per cent return was realized. The number of employees represented in the 429 tabulated questionnaires was 179,337. Statistically speaking, this constitutes a reliable sample. Typical activities reported in the various programs included parties, picnics, and socials in the area of social recreation; bowling, softball, hockey, golf, and horseshoes in the athletic classification; and only slight activity in movies, camera clubs, and glee clubs under the heading of cultural recreation.

A number of values are claimed for well-conducted recreation programs in industry. Generally speaking, workers who play better work better. Industrial recreation has a constructive effect on the employee's attitude toward his position and his fellow workers. Few things can be offered to the worker that will develop a more valuable industrial asset—high worker morale. The development of such qualities as coordination, initiative, leadership, and the satisfaction of doing something well at play tend to carry over into the job. In this way the worker's productivity may well be increased.

The firm which offers a sound recreation program will find that it attracts and holds better workers. Employees appreciate the opportunity of more inexpensive recreation for themselves and their families. Basically, it is also a form of preventive maintenance fostering better health and thereby reducing industrial accidents.

An industry will find that the sponsorship of recreational activities will better its relationships with the community in which it is located. Good advertising and public relations result from a varied program which works in conjunction with the local community recreation effort. There are three viewpoints which manufacturers might take about their responsibility. Certain industries see only the recreation needs of their immediate employees, while a larger group of firms include their families and friends in their programs. The most mature thinkers along these lines see the extension of some use of their facilities to the community when they are not in use. Some firms have even contributed financially to publicly owned facilities or programs.

Development of Recreational Programs

To be most successful an industrial recreation program should be organized and conducted by an employee committee, even though the firm contributes financially towards its support and management has a representative on the overall operating committee.

It is generally agreed that a sound program can only be organized and supervised by a paid full-time director. Even if in-

dustries were receptive to paid leadership in recreation, there are very few trained directors available. The University of Western Ontario recently established a four-year course above Senior Matriculation leading to the Honours B. A. in Recreation. This is the first such course to be offered in Canada. It should be clearly understood by all firms considering the establishment of a recreation program that a physical education graduate does not automatically qualify to be a director of industrial recreation. He would need at least another full year of study and field work experience to have an ample background for this work. Volunteer part-time leadership is probably better than none, but is definitely not as good as the employment of a *qualified* full-time director of recreation.

In any case, the following four suggestions should be followed if an adequate and successful program is to be developed.

1. Basic Principles

Before beginning a recreation program in any particular industry, it must be determined that the need exists. A program has to originate in the interests of the employees. Emphasis must be placed on arranging the program to meet the present or potential interests of all the employees. About half the labour force in the average industry is over forty years of age. This group of employees will need a less active type of recreational activity. Workers approaching retirement should develop skills and interests and various crafts. A wholesome avocation might subsequently become profitable part-time employment upon retirement. Through a connection with the recreation program, retired employees may retain their contact with the company for many years. Likewise, office workers and executives may require a program balanced with social and cultural activities to hold their interest.

It would be folly to rush into a full-scale program when the idea is first initiated. A few, well-chosen activities which are destined to succeed should be carefully organized to start the effort. As soon as results would indicate the wisdom of expanding the number and types of activities, a determined effort should be made to offer a greater variety. Participation on a voluntary basis should be open to all employees and also to retired personnel.

Management should indicate at the outset that the firm's good will is behind the newly-organized program. The program should be operated democratically by the employees themselves, even though a paid director may promote and coordinate the entire effort. A representative of management should sit on the committee guiding the program.

It is wise to encourage as many workers as possible to help with the promotion and operation of the program. Rotation of committee members after a certain period of time will prevent inactivity of the group. The appointment of new members to the committee should be staggered so that experienced members are always present.

An acceptable constitution should be drawn up as soon as possible so that the program follows a clear, well-defined policy. The recreation committee should be careful to concern itself only with recreation. Company problems have no place on the agenda of any of this group's meetings. The committee's foremost objective should be a democratically organized recreation program meeting the needs and interests of all employees.

2. Finances for the Program

Industrial recreation programs work best when they are developed as joint projects of management and employees with each sharing about 50 per cent of the expenditures. Management generally supplies and maintains the facilities on property owned by the company. A number of firms use auxiliary methods of raising funds to support the recreation program. Concessions operated within the plant often net profits which can go into the general fund. Special events may be offered with spectator appeal. It can be advertised that profits from such ventures will go into the employee recreation fund.

It is important that the respective contributions of both management and employees be clearly understood by all concerned, as well as the ways and means for increasing the fund through auxiliary sources. Employees' contributions are typically made in three ways: payroll deductions, membership fees, or paid admissions. It is quite possible to successfully combine several of these methods. An annual budget should be carefully drawn up by an executive committee of a larger employee recreation council. In this way the budget is democratically controlled by a duly-constituted group of employees. It is advisable for management to have a representative on this council.

3. Facilities for Industrial Recreation

Lack of facilities for industrial recreation can be a serious stumbling block for an older company venturing into this area. If new plants are being built, it is relatively simple to include certain recreation facilities in the plans, or to assure their availability in the community.

In the survey conducted by the Community Programmes Branch, it was interesting to note that 189 companies reported on

their facilities for recreation. Forty-seven (or 25 per cent) have a recreation hall, while many others have authorized the use of their cafeterias to double as recreational areas. Thirty-eight sport fields were also reported. These were the only significant items mentioned under the heading of facilities. Ice surfaces and bowling alleys were desired by many of the reporting companies, but were as yet unavailable.

When lack of facilities presents a problem, considerable ingenuity and enterprise will have to be employed. A professional recreation director should help a great deal at such a time. A planned approach to the community through the local recreation commission and its recreation director should uncover a number of avenues leading to possible interchange of recreational facilities between the firm and the community. Young Men's and Young Women's Christian Associations, as well as other voluntary agencies, are usually only too happy to effect some sort of a cooperative arrangement. Facilities might be secured also for a nominal charge from churches that happen to have recreational areas.

4. Publicity for the Program

The employees must be continually informed about the recreational activities that are being offered. A newly-hired man or woman might well hear a talk about the opportunities that are open, or a leaflet containing this information might be distributed. A company paper can be used to publish the results of physical recreation activities and to announce forthcoming projects of all types. The firm's recreation committee or council should have representatives from the various branches of the firm who can serve as public relations agents for the program. Bulletin board notices, spot announcements over a public address system, campaigns for membership, announcements in the local newspaper or in pay envelopes, etc. should also be used to boost attendance.

Potential Problems

Just as in any other area of endeavour, the successful industrial recreation program will encounter many hurdles which must be overcome. Management will have to show good faith if certain factions within the firm misunderstand the idea behind the effort. Some might suggest that the recreation program is the company's way of keeping down wages, or that the firm's contribution might better go toward larger pensions.

Lack of participation of the older employees in the plant may be caused by the program's inability to offer a sufficient variety of activities to keep a sustained interest on the part of all classes of

empolyees. Oftentimes it may be difficult to keep up any regular participation in certain activities. It may be that the employees' needs in these respects are being met by other agencies or the community recreation program. Careful initial surveys before launching new types of program material should always be undertaken.

A group of employees might resent any inroad whatsoever upon their pay envelopes, and rightly so if they are not convinced of the worth of the program. An educational program is definitely vital to its success. It is undoubtedly best to avoid pressuring the recalcitrants at first, but to invite them occasionally to plant activities as non-members of the recreation association.

From both a practical and theoretical standpoint, it would seem inadvisable at the outset to start a program by encouraging the formation of a competing team in basketball or baseball to play in some outside industrial league. This usually seems like a good form of advertising for the plant and is encouraged by shortsighted management. This type of activity should not precede a sound recreation program including physical, social, and cultural groups of various natures. This situation is analagous to the predicament in which high schools and universities are finding themselves. Too much money has been spent on the few, who immediately think the company owes them special privileges, and not enough time, effort, and money has been spent on a well-rounded program of activity for all. One director said, "We are interested in what the ball does to the player, not in what the player does to the ball."

There may be many other problems such as the difficulties of mixing factory and office workers, providing programs for shift workers, arranging transportation, and using too much of the employees' time in arranging the schedule of activities. It must be mentioned that a great many of these problems could be eliminated by professional leadership.

A Blueprint for Action

Future industrial development must consider the recreational needs of employees. A firm seeking a location upon which to build should inquire what community recreation will be offered to their personnel. A community that does not sponsor a recreation program geared to the needs and interests of all ages will likely be a backward community in a number of other ways.

A broad educational program is needed to develop this phase of recreation in Canada. There is no National Recreation Association or National Industrial Recreation Association in Canada such as those which exist in the United States. The Recreation Directors'

Federation of Ontario recently decided to extend an invitation of membership to directors of industrial recreation in Ontario. The Community Programmes Branch of the Ontario Department of Education offers the advisory and technical services of a specialist in the area of employee recreation. As mentioned earlier, the University of Western Ontario offers the only course in Canada leading to the Honours B. A. in Recreation. The University of Toronto School of Social Work is planning to start a one-year course for physical education graduates or their equivalent leading to a Bachelor of Social Work degree in Community Recreation. The Treasury Board of the Federal Government recently made available to the National Council of Physical Fitness the sum of five thousand dollars to encourage some college or university to offer a one-year diploma course in recreation. It is not intended, however, to gear this work towards the needs of industrial recreation. A person completing such a diploma course would have a comprehension of the basic theory and practice of recreation. Provided he posessed desirable personality traits, this preparation would give a reasonable background for industrial recreation work.

Much more than what has been mentioned is needed however. Other universities should offer course work in this area. Literature describing all phases of the industrial recreation program should be made available. Local, regional, and provincial conferences concerning this vital service should be sponsored by provincial departments of education. In the situation which exists at present, they should provide this service. Executives in industry should turn to them for this help, as the various departments of education could aid them by organizing temporary training courses until the universities meet this need. Further research of the type recently provided by the Community Programmes Branch of the Ontario Department of Education is needed right now.

Canadian industry is becoming increasingly progressive. If industrial recreation is good business, let us make it our business to start programs of this type where they are not already in existence. If they *are* operating now, let us make them better by meeting the needs and interests of all employees and by teaming up with existing programs of community recreation.

The Poll of Canadian Executive Opinion

Edward J. Fox*

The Division of Research of the University of Western Ontario School of Business Administration has recently inaugurated a continuing, national Poll of Canadian Executive Opinion, which, it is hoped, will provide a necessary and desirable service for members of the Canadian business community.

In this article, Dr. Fox, Director of the Division, describes the organization of the plan, the formation of the panel, and the results of the first Poll.

RECENTLY, *Business Quarterly* subscribers received an advance release on the first Poll of Canadian Executive Opinion—a new project designed to fill a significant gap in the business community services. The release pointed out that a permanent panel of top Canadian executives had agreed to periodic questioning on matters of current importance. The panel consists of over two hundred companies, widely distributed both industry-wise and geographically, representing the business groups with the greatest economic impact on Canada. This article is designed to point up some of the reasons why the Poll was established and to comment briefly on some of the findings.

The School of Business Administration and its advisory committee of Canadian businessmen had felt for some time that there was an important place for a *continuing, national* survey of an accurate cross-section of Canadian business. It felt that it would be difficult to overemphasize the importance of supplying credible, current indicators of business conditions and opinions.

First, businessmen, in making their own decisions, must know what others are contemplating. Secondly, the business community has a responsibility to be heard on all public issues which affect it. If Government policy is to be properly influenced by the voice of business, however, specific data truly representing the feelings of business as a whole must be made available.

*The author wishes to acknowledge the highly competent assistance of Miss Patricia K. Norsworthy, Research Associate in the School of Business Administration, both in the organization of the project and in the compilation of the returns.

It was the purpose of the School of Business Administration to assist in the mutual cooperation between businessmen which would be necessary if such information were to be obtained, and it was on this basis that a highly representative sample from major Canadian companies was invited to participate. With over eighty per cent of the replies to date being favourable, we believe that the Poll can be continued as long as the business community feels that it is providing a worthwhile service.

The Poll is conducted by the Division of Research of the School, which is sponsoring the project.

Results of Poll No. 1

In interpreting the following information, it should be remembered that the panel was questioned in December, 1951, that the Government's credit restrictions were relaxed *after* the members were polled, and that completed questionnaires are anonymous.

I

It is clear that the panel does not share the belief of some unofficial Government spokesmen and some press opinion to the effect that prices have been stabilized. *Seventy-eight per cent* of those expressing opinions felt that it would be necessary to raise their prices before July; forty-two per cent felt that it would be necessary to raise their prices before April.

Question: (addressed to all firms which offer goods or services at specified prices) As far as *your own prices* are concerned, do you feel that:

(a) It will clearly be necessary to raise prices within the next *three* months?

Yes—more than 9%	4%
Yes—from 5% to 9% inclusive	19%
Yes—but less than 5%	19%
No	58%

(b) If it will *not* be necessary for you to raise prices within the next three months, it *will* be necessary within the next *six* months?

	Per cent of panel
Yes—more than 9%	3%
Yes—from 5% to 9% inclusive	10%
Yes—but less than 5%	15%
No	20%
Too uncertain to forecast	10%

(c) The future is too uncertain to forecast such a trend (for either three or six months) at the moment? 16%

These opinions are peculiarly important in that they represent the feelings of men who will be making the decisions as to whether prices will or will not rise.

It should be noticed that although a substantial majority predicts an increase, the increase ordinarily anticipated is under five per cent.

II

Members of the panel were questioned to determine whether what they predicted for their own companies, they also foresaw for the country as a whole. Actually *seventy-eight per cent,* which however includes many who do not plan on raising their own prices and excludes many of those who did plan on raising their own prices, believe that the cost of living for the country will rise.

Question: A good indication of price trends is the Canadian "cost of living" index. Do you think that, barring new outbreaks of war or flatly conclusive peace in the next few months, the index for this period for the country as a whole will:

(a) Rise more than 9%	1%
(b) Rise from 5% to 9% inclusive	17%
(c) Rise less than 5%	60%
(d) Remain the same	11%
(e) Drop	8%
(f) Undecided	3%

The answers to the above questions clearly point up the belief of a great majority of the panel that prices will rise before July. This is underlined by the high percentage in both groups—i.e., those who believe prices will rise in their own companies and those who believe prices will rise for the country as a whole—indicating this trend. For those who are used to obtaining their information about the cost of living index from the newspapers, it should probably be pointed out that an increase of five per cent represents at the present time approximately nine *points* in the index.

In this connection, it should be noticed that almost one panel member in five believes that prices will rise *more* than five per cent. An increase of this magnitude would presumably have most significant repercussions.

III

Questioned as to how they felt about a general freeze on prices, such as exists in the United States, the panel *emphatically* rejected any over-all Government price controls. *Ninety-six per cent* are opposed to such a solution for rising prices.

Question A: What do you think the Federal Government should do at the present time (December, 1951) regarding over-all price controls?

(a) *Unnecessary* now and should *not* be introduced..... 81%
(b) *Desirable but unenforceable* now and should *not* be introduced 15%
(c) *Desirable* and *should* be effected now..... 2%
(d) Undecided 2%

Question B: If you believe that a general freeze is either unnecessary or unenforceable *now,* what do you think the situation will be *as of March 1952?*

(a) Unnecessary even by then..... 76%
(b) Desirable but still unenforceable..... 16%
(c) Desirable and enforceable..... 2%
(d) Undecided 6%

The panel's view on price trends for the future as well as its opposition to Government controls raises certain important questions with which the Poll will be concerned in the future. Namely, with ninety-six per cent opposing controls and seventy-eight per cent believing that prices will rise, what does this imply as to the attitude of the business community toward rising prices? Does it, for instance, mean that the business community is not concerned over the trend, or does it mean that it rejects Government price controls as a solution? If it does mean that it rejects Government price controls, what controls, if any, does Canadian business see as appropriate? Such questions as these will be directed to the panel in the near future.

In interpreting replies to the price trends question, it should be noted that the question is qualified. The answers given are based on the assumption that there will be no war and that, similarly, there will be no conclusive peace—in other words, that the conditions prevailing in December would more or less continue for the next three to six months. Obviously, the percentage anticipating major increases would be much higher if it were anticipated that war would become even more serious; similarly, if a believable peace were to be established, many would undoubtedly believe that downward trends would predominate.

IV

Although we anticipated that many might be opposed to a general freeze, we thought that there might be some who would favor controls on individual items. We were particularly anxious to determine how they felt about controls on profits and wages.

It is clear that those who are opposed to a general freeze are deeply opposed in almost as great degree to controls for any individual sector.

Question: If opposed for any reason to a *general freeze*, do you *approve* controls for any of the following?

	Per cent of panel
(a) *General* retail prices	2%
(b) *General* wholesale prices	3%
(c) *General* raw material and farm prices	5%
(d) Prices of (i) consumer durable goods	1%
(ii) food	3%
(iii) clothing	2%
(iv) basic metals	3%
(v) construction materials	2%
(e) Wages	6%
(f) Rent	9%
(g) Profits (through excess profits taxes)	6%
(h) Interest	4%

It is interesting to note that despite what many critics of business might have anticipated, wage controls are favoured by no larger a percentage than that favouring profit controls (six per cent in both instances). It is also interesting that those who favour controls on such items as rents, wages, and profits are unsympathetic to controls over prices.

V

One of the most surprising findings of the Poll to many will be the reaction of the panel to Government and bank credit restrictions. These reactions have special interest in view of the amount of publicity given to objection to the restrictions on the part of business.

The panel is sharply split over the desirability of relaxing controls; virtually as many oppose relaxation as favour it. The panel's opinions on credit restrictions have special interest in the light of the recent relaxations of credit terms which occurred *after* the questionnaires were completed.

Question A: How do you feel about the present Government and bank regulations on credit?

(a) Should be continued as they are	42%
(b) Should be continued but made more stringent	5%

(c) Should be continued but relaxed 43%
(d) Should be dropped 8%
(e) Undecided 2%

Groups (a) and (b) may be taken as opposing relaxation—47%; groups (c) and (d), as supporting relaxation—51%.

We feel that the answer to this question indicates the desirability of such polls as this. With the widespread public opinion that business was almost unanimously opposed to the regulations, it is important for both the public and the business community to know of the split. The Poll, by providing a voice for a solid cross-section of Canadian business, can help give voice to the inarticulate elements in the business society.

When the panel was under consideration, we were concerned that it might not reach its maximum usefulness since there might be a tendency for many businessmen to confuse the effects of a given policy on their own company with those on the country as a whole. A comparison of sections B and C below suggests that many panel members are well able to distinguish between these effects. For example, thirty-three per cent of the panel felt that their own business had been damaged by bank credit restrictions. Only twenty-one per cent, however, felt that the country had been damaged. Similarly, sixty-one per cent felt that the credit restrictions had been innocuous as far as their own businesses had been concerned. Of this group, only five per cent felt that the restrictions had had little or no effect on the country as a whole. It is encouraging and significant for the evaluation of the Poll that this degree of objectivity is obtainable.

As for the effects of bank credit restrictions on the country as a whole, a substantial majority of the panel believe that they have been helpful.

Question B: What do you feel has been the result of bank credit restrictions *on the country as a whole?*

(a) Seriously damaged 3%
(b) Moderately damaged 18%
(c) Little or no effect 5%
(d) Helped moderately to stabilize the country 60%
(e) Helped greatly to stabilize the country 13%
(f) Undecided 1%

A third of the panel feel that the bank credit restrictions have damaged their own businesses.

Question C: What has been the result of bank credit restrictions on *your own business?*

(a) Seriously damaged	5%
(b) Moderately damaged	28%
(c) Little or no effect	61%
(d) Helped	3%
(e) Undecided	3%

While the number who feel that their own businesses have been damaged is large, it is possible that the figure would have been substantially larger had there been a larger sampling of smaller companies which, if common opinion is correct, have been the more heavily affected because of their limited financial resources.

Conclusion:

The high and enthusiastic response to the invitations to join the panel has been deeply encouraging to the School and has confirmed its judgment that the Poll is a necessary and desirable service.

The Division of Research believes that the sample is thoroughly representative and that the results of the first Poll are dependable within the limits of accepted commercial research practice. It therefore proposes to continue the panel as long as the business community feels that it is a worthwhile service.

Some Effects of the St. Lawrence Seaway

Edward G. Pleva

Dr. Pleva, Professor and Head of the Department of Geography, University of Western Ontario, presents a concise statement of the probable effects of the Great Lakes-St. Lawrence Deep Waterway on certain Canadian economic and commercial patterns.

THE prediction of the probable effects of an improvement in transportation facilities is difficult. Certain aspects and characteristics of the economic history and regional geography of North America, however, permit a limited but important speculation on the probable effects of the Deep Waterway or Seaway on certain Canadian economic and commercial patterns.

Geographical Aspects

The Great Lakes - St. Lawrence system is unique. It has no counterpart or duplicate anywhere in the world. The system penetrates a continent and opens out the interior eastward to the Atlantic Ocean, the major commercial sea of the twentieth century.

The elevations above sea level of the lake surfaces are as follows: Superior 602 feet, Michigan and Huron 581 feet, Erie 572 feet, and Ontario 246 feet. These levels are preserved by the structural characteristics of the lake basins.

The water flowing in the connecting links and the St. Lawrence River represents the excess of run-off over evaporation and seepage in the drainage basin. Rainfall in the Great Lakes - St. Lawrence watershed averages 36 inches a year, and over half of the rainfall is discharged through the lakes and St. Lawrence River.

The rainfall in the drainage basin over the past century shows less than a 10 per cent variability from the average. The Great Lakes - St. Lawrence watershed is one of the most stable climatological regions of the world. The average discharge can be depended upon within quite narrow limits. The agricultural prairies of Canada, in contrast, show a rainfall variability of almost 40 per cent from the average.

Prospective Artificial Improvements

The natural obstacles in navigation are in the connecting channels and the St. Lawrence River. The St. Marys River be-

tween Lake Superior and Lake Huron requires one new lock and 63 miles of dredging. The St. Clair River, Lake St. Clair, and the Detroit River between Lake Huron and Lake Erie require 88 miles of dredging. Canada's Welland Ship Canal, by-passing the Niagara River and Niagara Falls between Lake Erie and Lake Ontario, already has locks built to the Seaway's specifications, but requires 28 miles of dredging. The International Rapids section of the St. Lawrence River requires locks and the installation of the power development. The Soulanges section needs two locks. The Lachine section requires a new canal and locks.

From the earliest days of settlement, man has improved the efficiency of the waterway through progressively more effective canal and lock systems, dredging and harbour protection, ship design and carrier types, aids to navigation, loading and unloading facilities, etc. There are many critics of the Seaway who imply that any "tampering with nature" will be disastrous. It is obvious that these critics are unaware of the economic history of eastern North America that traces the continual improvement of the Great Lakes - St. Lawrence system as a traffic-way. The Seaway plan is merely the contemporary improvement of one of the world's most important trade routes.

Economic Development in the Great Lakes Industrial Empire

The area about and immediately tributary to the Great Lakes and St. Lawrence River is the world's primary industrial area. The industrial record of this area during World War II clearly established its leading rank. There are no indications of stagnation or immediate decline of this area. In fact, the acceleration of industrial location and production since 1946 is greater than during any previous economic period, including World War II.

Many students of economic history have pointed out through detailed studies that the North American centre of industrial activity, the centre of population, and the centres of agricultural production, mineral production, and forestry production are moving decade by decade in a general westward direction with an increasing northward acceleration. The economic centre of North America is moving dryward and coldward. The Great Lakes - St. Lawrence system parallels the continent's developmental tangent and opens to the Atlantic Ocean, the most important trade "mediterranean" in today's world.

Opposition to the Seaway

There is an overwhelming opinion in favour of the Seaway,

but official and necessary approval has been withheld by the United States Senate. The opposition by the Senate is understandable, since in the United States' system of checks and balances the Senate is designed to protect sectional interests despite the relative importance of the areas involved. The sparsely populated states of the West and many of the small states of the Eastern Seaboard are represented in the Senate equally with the important industrial and heavily populated states. Thus the Senate protects the interests of states and groups of states certain to be overruled and submerged by a representative body. Although "logrolling" is a common and legitimate practice in Senate procedures, there is considerable evidence that sectional interests are strong enough in the Senate to block passage of the Seaway Plan as a joint international project.

Canada as the Sole Sponsor

Canada has now moved to build the Seaway alone. Certain agreements with the United States Government and the State of New York are necessary. The approval and active participation of New York is guaranteed because of New York's critical industrial need for the hydroelectricity of the International Rapids section. Approval by the United States Senate permitting Canada to go ahead alone will not be long delayed because the arguments used in the Senate to block American participation cannot be used legitimately to block Canada's proposed All-Canada plan. If the Senate refuses to approve the Canadian plan because of economic effects on certain sections of the United States, the earlier arguments against the Seaway become invalid. The Senate cannot refuse Canada the right to go ahead alone without admitting its major arguments against the United States' participation are invalid. Canada has created a dilemma for the United States Senate, and there is no easy escape through the horns.

Use of the Seaway

The United States has developed an industrial capacity beyond the availability of domestic natural resources and beyond the normal demands of the domestic market. The United States has become the number one world trader. Studies on the potential use of the Seaway, particularly studies of the inland basic iron and steel industry and Labrador iron ore deposits, indicate that at least two-thirds and probably three-quarters of the tonnage of the Seaway will be coming from or going to the United States.

Canada should study the possibility of a system of marginal tolls to amortize the cost of the navigation portion of the plan. A

system of tolls would have a direct beneficial effect upon the United States in prolonging the economic life of the rapidly diminishing Lake Superior high-grade iron ore reserves. A system of marginal tolls would cushion the competitive blow of Labrador ore and permit an economic development of beneficiating processes on the low-grade iron ore or taconite of the Lake Superior district.

Climatic Limitations

Despite the winter freeze-up, the Great Lakes system today is the world's busiest waterway. The "Soo" canals carry more tonnage than the Panama and Suez Canals combined. The limitation of winter temperature is a factor already accepted by the users of the Great Lakes and the people of the Great Lakes regions. It is not necessary to guarantee year-round shipping to justify the Seaway project.

Actually, year by year, the shipping season is being extended through the development of modern powerful carriers, improved aids to navigation, and better design of port facilities. It is altogether possible that one of the peacetime uses of atomic power will involve keeping the water in limited areas such as locks above the freezing point. Actually many parts of the Great Lakes - St. Lawrence system are open for all-year operation now.

Obsoletion of Present Carriers

The history of shipping on the Great Lakes has been a continuing development of changing types to meet changing conditions. The mere building of a Seaway will not make present types obsolete before their cycle of obsolescence is completed any more than the building of a super-highway makes a late model truck obsolete. However, when the operator replaces each piece of equipment, he may replace it with a unit more in line with the improved capabilities of the facility.

It is likely that the next twenty years will see the development of a specialized ocean-lake carrier suited to the opportunities of the Seaway, just as the large "Soo" locks brought the development over an extended period of the modern specialized grain and ore carriers we know today.

Cost of the Project

Various estimates range from 300 million dollars to three billion. The most sensible estimate was made by Canada in 1949 —805 million dollars, of which Canada has already spent 132 million dollars (largely for the Welland Ship Canal), and the United States, 32 million dollars (largely at the "Soo").

An All-Canada project would cost slightly more than 805 million dollars, but Ontario and New York have guaranteed the cost of the power development, which represents roughly half the total cost. Like all capital expenditures, the final verdict must rest not only on the apparent amount spent but also on the returns from the investment. The Canadian government has taken all required action to invest the necessary money in the project, and the Seaway Project will in all probability be started in 1953, with completion of the power phase likely by 1957 and the navigation phase likely by 1959.

The Ontario Wedge

The Ontario Wedge is the area south of a line drawn from Midland to Kingston. This includes that part of Ontario south of the Canadian Shield. It is bounded by Georgian Bay, Lake Huron, St. Clair River, Lake St. Clair, Detroit River, Lake Erie, Niagara River and Lake Ontario. This area juts south of the 45° parallel between New York and Michigan States and is known popularly as Southern Ontario. Comments on the effects of the Seaway will be confined largely to the area of the Ontario Wedge.

Population and industrial activity increased in the Ontario Wedge during the decade of 1941-51 by 23 per cent and 47 per cent respectively. Population gains were almost entirely urban with the "middle town" (2,500-25,000) showing the greatest relative growth. Almost all the growth in the large urban centres was fringe growth with a limited amount of centre decay in some instances.*

Most of Southern Ontario will double in population within the next thirty years. Some districts will experience a Sarnia-like

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* A Note on Decentralization:

Detailed studies of economic development in a given area show that centrifugal (decentralizing) forces are operative along with centripetal (centralizing) forces. Each entrepreneur makes decisions according to what he believes are his own best interests. A period of centralizing merely means that the pattern of industrial location is dominated by centripetal forces. Today, however, the pattern is dominated by decentralizing or centrifugal forces. This does not mean that entrepreneurs are moving their plants to unlikely areas. It does mean, however, that they are dispersing new plants within the more favoured areas. There is an appreciable spreading out of industrial density within the favoured areas.

Vulnerability to attack is only one (and to date relatively minor) reason for the current continuing dispersal of industry in the Great Lakes - St. Lawrence River industrial area. The major centrifugal forces operating today are as follows: availability to services outside the established centres, the effective electrical grid, the automobile and the system of hard-surfaced roads it has nurtured, alternative transportation facilities, greater mobility of the working population, the deadening congestion of large urban centres, and the reactionary anti-industry policies of some centres.

The general effect of the centrifugal forces on the industrial area of the Great Lakes - St. Lawrence region is to increase and spread out the industrial emphasis from the restricted centres where it was previously pin-pointed.

growth and will double in population in the next ten years. The most favourable areas for growth are the St. Clair frontier, the Detroit River frontier, the Niagara frontier and Welland Canal District, and the industrial horseshoe around western Lake Ontario from Port Hope to St. Catharines. Urban development of inland centres will be fringe growth toward the Windsor-Montreal superhighway, when completed. London and St. Thomas will grow towards each other, while the important industrial towns clustered in the Grand River Valley will in some instances actually blend together.

Potential Seaway Ports

Not every lake town or river mouth will be developed to Seaway specifications. In the Ontario Wedge the following areas or natural harbours should be developed: the Midland area, Sarnia and St. Clair River frontage, Detroit River frontage, Port Colborne, Burlington Bay at Hamilton, Toronto Harbour, and Kingston Harbour. It is interesting to note that only two Canadian areas outside the Ontario Wedge district warrant development to Seaway specifications at present. These areas are the Thunder Bay district of Fort William and Port Arthur and the "Soo" frontier.

Established ports in Southern Ontario developed at river mouths have distinct limitations. Owen Sound, Goderich, Port Dover, Port Stanley, and Port Burwell are subject to all the handicaps of a river mouth harbour: silting, surge, scarcity of industrial land in the river valley, accelerated shore erosion due to current alterations by breakwaters and piers, etc. This does not mean that these ports have outlived their usefulness. Actually over four-fifths of the shipping in the Great Lakes in the next decade will draw twenty feet or less and can enter most of the secondary harbours. Whether these secondary harbours will be developed to full-scale Seaway specifications depends on local promotion and local subsidization.

It is possible from an engineering standpoint to build an artificial harbour with port facilities. Such an artificial harbour was built on the shores of Normandy during and after the continental invasion of World War II. A "Mulberry" project could be undertaken in several areas around the Great Lakes where currents, shore configuration, and hinterland for port installations and industrial development are suitable. A "Mulberry" will be developed sometime in the future on the north shore of Lake Erie. The Lake St. Clair frontage and the St. Clair River distributary system (Walpole Island, St. Anne's Island) have many suitable sites for the construc-

tion of a "Mulberry" type industrial port. It will be at least thirty years before a "Mulberry" harbour will be justified in Canada, although the United States may require such developments within the next decade, especially in certain geographically favoured sites on the south shore of Lake Erie.

Regional and Urban Planning Programs

It is imperative that democratic planning in Ontario under the Conservation Authorities Act and the Planning Act be continued and strengthened to guarantee the best possible development of the region. An over-all framework of reference should be established in order that the entire region may develop under a unitary program. Too often local selfishness and jealousy work to the detriment of orderly growth. The entire region prospers if a certain industry, for example, locates in the best possible place for itself and the region—whether that place be Toronto or Strathroy or some other place. Too often a ruthless competition for industries has worked to the detriment of the entire region.

Many municipalities have established planning boards for their urban centres and suburban areas under the machinery of the Planning Act. Too often the compass of a local board is too restricted to give proper protection and encouragement to the ever increasing industrialization of the Ontario Wedge.

Industrial planning boards or authorities covering significant actual and potential industrial areas should be established immediately by the municipalities involved in the area. At present there is an immediate need for the following industrial area planning bodies: St. Clair frontier, Windsor frontier, London - St. Thomas - Port Stanley area, the Grand River area, the Niagara Peninsula, the Lake Ontario North Shore, and the St. Lawrence River communities. Already in many parts of Southern Ontario potentially valuable industrial land has been blighted by the encroachment of residential and other non-productive or sterile uses. All over the province of Ontario excellent industrial sites along railroad lines and major highways have been closed in and blighted by non-industrial uses. Modern industry prefers sites with both highway and railway accessibility. There is no planning difficulty in locating modern factories along the new super-highways because access can always be engineered from the sideroads and interceptor roads. It is largely the ribbon growth of residential development that blights the modern highway.

A certain degree of concern is felt in many circles about a possible shortage of water for domestic and industrial purposes in

inland towns and cities. Some municipalities are faced with inadequate supplies for expansion at present. Other centres, like London, have sufficient visible supplies for a definite expansion. At the present rate of growth it is inevitable that the inland municipalities, either separately or collectively, must go to the nearby Great Lakes for an abundant and adequate water supply. These supplies may be transported by a distributary system of pipelines or may be pumped into accessible natural drainage courses, such as the Grand River and Thames River, from which the municipalities may take their supplies. The latter scheme necessitates a general cleaning up of the river courses and an aggressive program of pollution abatement and control. Many inland centres like London and St. Thomas are within sight of complete pollution control, while some towns like Clinton have completely adequate systems in operation now.

Many Ontario cities on the Great Lakes draw abundant supplies of clean water from the lakes and connecting rivers but daily discharge millions of gallons of untreated domestic and industrial wastes to pollute the lakes and rivers in the vicinity of their sewers. These municipalities have every right to use the waters of the lakes and rivers but they have no right to destroy them. Modern engineering skill can design, build, and operate plants for the complete treatment of domestic and industrial wastes. There is no reasonable excuse for the crime of stream pollution. Municipalities such as Sarnia, Windsor, Chatham and Wallaceburg, among many others, must begin immediately to construct proper plants for sewage treatment and disposal. Similar programs of pollution control must be undertaken by American authorities in order to insure full use of the water resources of the Great Lakes - St. Lawrence region.

An International Authority

In order to guarantee the proper development of the International region of the Great Lakes - St. Lawrence Seaway area an international planning authority should be established to include the Governments of Canada and the United States, the Province of Ontario, and the eight States of Minnesota, Wisconsin, Michigan, Illinois, Indiana, Ohio, Pennsylvania, and New York. The powers and the duties of the authority would include the planning of the development of the entire region on a unitary basis and the formulation of recommendations to the constituent Governments concerning proposals necessary for orderly development.

Many agencies in Canada and the United States are engaged actively in plans and projects of various phases of the Seaway. The

planning authority would not duplicate the work now being done, but would be an orientation of all existing cooperating bodies to the successful application of all resources to the area under development. The exact composition and the operative machinery of the authority can be left to governmental discussion and agreement. The main point is that an international planning authority geared to the challenge of the Seaway project should be established immediately.

If the above-mentioned recommendations were to be carried out, the effectiveness of the Seaway as presently planned would be multiplied manifold.

The University and Executive Training

L. W. Sipherd
W. A. Thompson

*"Another reason, . . . for the increased attention to executive development is a belated recognition of the fundamental importance of human beings in industry. Technological developments, stimulated and encouraged by the war, have far outstripped our administrative knowledge and capacities to cope with the changes. New skills are required, new understandings of people in organizations must be established; in short, new types of administrators are needed. Business leaders are increasingly recognizing their responsibilities to provide for the development of tomorrow's executives."**

In this article, Dean Sipherd of Western's School of Business Administration and Professor Thompson, Associate Dean and Director of the Management Training Course, describe what Western is doing to meet the need for executive training.

IT took the war, with its heavy drain on the younger men in industry, plus the heavy strain on older executive personnel, to bring out into the open the great need for doing something about training men for executive responsibility. Too, quite a few Boards of Directors have been startled by statistics which prove that more vacancies at top executive level occur for reasons other than the normal retirement of older men. It is not surprising, therefore, to find businessmen today very much interested in ways and means of solving the problem, especially from the standpoint of the part which a School of Business Administration such as that at the University of Western Ontario might play in this important development.

The Executive Development Process

A Harvard professor was recently requested by business leaders in the United States to make a study of the various approaches

* Myles L. Mace, Division of Research, Graduate School of Business Administration, Harvard University, 1950.

being made in industry in the realm of executive training. The results of this survey were published in a book entitled *The Growth and Development of Executives.** Of necessity this study had to be limited to a manageable number of concerns and for sake of simplicity, to manufacturing organizations.

It was found in the study that while these companies recognize the importance of developing personnel in the organization and were actually doing something about it, there was substantial variance as to the method of approach. There was also a varying degree of effectiveness of the individual programs, and interestingly enough, some of the least publicized plans were getting the best results.

Generally speaking, training programs break down into two categories: on-the-job training and training courses offered outside of industry, ordinarily by universities. These constitute substantially different approaches to the problem, and it is in the interest of clarifying the position of the university in this over-all development that this is being written.

On-the-Job Training

Many on-the-job training programs have received considerable publicity of late, and there is considerable evidence that management in general is awakening to the potentialities of company programs for executive development of one sort or another. That these companies do not agree, however, as to how executive development should be tackled is evidenced by the multiplicity of plans in use.

For example, many companies use a job rotation plan designed to give selected individuals an opportunity to get acquainted with problems in all divisions of the business. The Esso Standard Oil Company follow such a plan. The U. S. Rubber Company has developed a comprehensive plan for job specification and executive appraisal designed to give management a long range program of executive replacement. The Bigelow-Sandford Carpet Company is another concern using such a plan. The Industrial Tape Corporation of New Brunswick, New Jersey, has developed a unique plan which they label as "An Adventure in Multiple Management". This consists of the creation of a Junior Board of Directors which is given the opportunity to wrestle with management problems, thereby gaining knowledge of all phases of the business plus experience in handling policy decisions (even though they only

* Myles L. Mace, Division of Research, Graduate School of Business Administration, Harvard University, 1950.

recommend action to the main Board of Directors). The Trane Company of Lacrosse, Wisconsin recently announced the appointment of a new president who was described in the press as a "product of the company's post graduate training course". He had joined the company as an engineering trainee in 1925, the year in which the program was inaugurated. Such Canadian firms as the Imperial Oil Company and the Bell Telephone Company have well organized departments working on the problem.

Off-the-Job Training

A quite different approach to the problem of executive development is the university training program which is being offered in the United States and Canada by many universities. Leadership in this field has been provided by the Graduate School of Business at Harvard University, which since 1943 has received from the business world nearly 1500 executives who have each taken thirteen weeks out of their business lives to attend one of the Advanced Management Training Courses. Actually, Harvard's interest in executive training dates back many years before 1943. Other schools in the United States have introduced executive training courses, though generally on a considerably less ambitious scale. In Canada, the University of Western Ontario entered the picture by offering in August 1948 its first Management Training Course, running for a period of four weeks. This course has been operated each year since then and has been increased to five weeks of intensive study.

The demand for admission into Western's Management Training Course program gives strong evidence that Canadian businessmen want this kind of help from the University. However, not everyone understands what this University is undertaking to do or can appraise the possible advantages of participating in such a program. The authors of this article welcome this opportunity to clarify this situation. The School is most anxious to be of service to Canadian business, but it is realized that if it is to be effective in this new role, the objectives and limitations of the program must be well understood by those who wish to have a part in it.

1. **How can Management expect help in developing executive talent in a university training course with the trainee segregated from his job?**

To appreciate what a university course might have to offer, it must be understood that the program as arranged at Western is not aimed at providing technical training. Training designed to provide experience and understanding of the techniques of par-

ticular operations in a business organization can often be supplied much more adequately by business itself. A great many company training programs are designed for just this purpose. The thinking of Canadian businessmen has been a constant source of help in Western's course. In the early planning stage it was urged that the development of administrative skill per se was the area in which the University could be of greatest use to Canadian business. Edgar Burton of Simpson's told us, "We can take care of teaching our people better stock control methods and advertising. We would like our people to get help in areas where they need it most—acquiring skills that enable them to get things done, working with and through people."

Many companies do not have training programs of any sort, yet are desirous of providing an opportunity for their key men to accelerate their development in the organization. This is true of a vast number of small companies whose needs in this area are just as real as those which are larger. Rapid growth is often a feature of the successful small firm. We are all familiar with the effect on morale of a whole organization when an outsider is brought in to fill the executive post that is made possible by phenomenal expansion. The acceleration of growth of executive skills of people *in* the organization is sometimes the answer to this problem. It is considered fortunate that the Management Training Course program at Western has had a strong representation from small business in each of the sessions which have been held. During the 1951 session 51% of the class members were from medium or small corporations.

Nevertheless there are arguments favouring participation in such a program by key executives of the larger companies, whether operating training programs of their own or not. In the first place, the men are completely separated from their business and home environment, thereby enjoying more ideal conditions for a complete application of effort to the job at hand. Experience so far at this University indicates conclusively that the men want to go "all out" and that they welcome the demand on the part of the course Director that the men live in dormitories and sever all connections possible with their offices and homes (with the exception of one weekend break midway in the course). The class and study room facilities as provided by the University create the best possible environment for concentrated work.

Even more important, however, is the fact that a member of such a class is thrown into contact with men from many other kinds of businesses, and coming from nearly every province in the Do-

minion. Those who are responsible for deciding upon those applications which are to be accepted make a conscious effort to see that the membership of a particular class represents a good cross-section of industry, finance, etc., as well as types of executive position held. Note for example, the following statistics covering the MTC class of 1951:

Positions Held	*No. of Men*
Sales	21
Production	15
Accounting	10
Finance	7
Engineering	7
General Management	5
Personnel	5
Advertising	4
Purchasing	4
Warehousing	2
Production Control	1
Inspection	1
Transportation	1
Statistics	1
Legal	1
Total	85

Type of Company	*No. of Men*
Manufacturing	46
Distributing	18
Public Utility	9
Financial	9
Government	1
Accounting	1
Consultant	1

Perhaps the most frequently repeated comment from members of the class who have completed their course is that they have enjoyed more than anything else the opportunity of living and working intimately with such a diverse and able group of individuals.

2. Should a trainee expect to participate actively in the training program to gain the most from it?

Those responsible for the administration of the Management Training Course at Western believe wholeheartedly in the case method of instruction. Actually, the instructors do not undertake to instruct. They act as leaders of discussion, and the students have

the floor at least 80% of the time. The use of actual business problems for class discussion is the nearest approach to re-creating for the students the kind of policy making experience which businessmen actually face on the job. The preparation of the cases, which includes at Western organized group discussion prior to class-time, and the class discussion on the cases have proven a wonderful means of stimulating the thinking process on the part of the students. Furthermore, they provide an excellent opportunity for the individual to gain experience in expressing himself before a critical audience.

It follows, therefore, that those who are slated for participation in such a training program should come with the purpose in mind of taking an active part at all times. The saying that "one gets out of it what he puts into it" really applies in this case. The numbers of men who have developed considerable self-confidence through their active participation in class discussion have been many. On the other hand, the class member who is inclined to talk too much finds himself faced with a situation where the class brings him into line.

3. How should management select the men who should be offered the chance of attending such a Management Training Course?

An executive training course as may be offered by a university is really intended for the purpose of assisting management in the task of developing the capacities of those slated for advancement. Therefore, it follows that those who are "tapped" should be marked men, men who are singled out as possessing better than average ability. However, it is assumed that these men have had several years of experience with the organization and have already demonstrated their ability to handle responsibility, especially where this responsibility involves supervision of the activities of an important segment of the organization. Every year the announcement of the course lists the class roll of the previous session. Listed below are all the firms starting with "S" in the 1950 session.

"Salada Tea Company of Canada, Limited—E. T. Griffith, Factory Manager, Montreal.

Saskatchewan Federated Co-Operatives Limited—H. L. Fowler, Secretary, Member of Management Committee, Saskatoon.

Shawinigan Water and Power Company—H. B. Abbot-Smith, Power Sales Manager, Montreal.

Shawinigan Water and Power Company—L. McGillis, Budgetary Control Supervisor, Montreal.

Shell Oil Company of Canada, Limited—H. L. Hinchcliffe, Field Distribution Planning and Policy, Toronto.

Robert Simpson Company Limited—N. A. Urquhart, Buyer, Toronto.

Robert Simpson Eastern Limited—G. R. Hunt, Manager, Department of Adjustments, Toronto.

Smith & Stone Limited—J. W. Bell, Plant Manager, Georgetown.

Standard Brands Limited—H. Jones, District Manager, Toronto.

Standard Brands Limited—F. P. Morrissette, District Manager, and Assistant to the Vice-President and General Sales Manager, Montreal.

Steel Company of Canada Limited—R. E. Karr, Supervisor of General Accounting, Hamilton.

G. F. Sterne & Sons Limited—F. E. Sterne, Managing Director, Brantford.

Strike-Rite Matches Limited—W. G. Whiteside, General Manager, London.

Supertest Petroleum Corporation Limited—J. B. Hargreaves, Manager, London Division, London.

The matter of age must also be considered. If experience such as outlined above is given proper weight, it should not be surprising that there are few applications for men under thirty years of age. This past year there were only three men accepted into the course under thirty years. On the other hand, the age of fifty is usually the upper limit for reasons which must be obvious. The average age of the men in all previous courses at this University has been in the neighbourhood of forty. It is interesting to note that this University experience almost exactly parallels that at Harvard University with their Advanced Management Program.

Sending a man to an executive training course should be a part of a long range program for developing executive talent within the organization. For one thing, this will assure a better feeling among those who are left behind, especially those who must shoulder a little extra burden while the man is away from his job. There is increasing evidence, furthermore, that some managements are timing executive promotions with such a training program which has the advantage of minimizing the adjustments both for the man and for the organization. Management might well regard the five weeks away for a man who is selected for an important impending move as being most helpful to him by way of providing him with an opportunity to orient his thinking about the bigger job ahead. However, one should not construe from the above that executive moves work out as simply as this, and in the majority of situations men who attend the course go back to their old jobs.

What about the chief executives of the smaller companies? Is there a place for them in the training program? While applications from such individuals have not been numerous, as there is usually great difficulty in such a man getting away for this length of time from his business, the few men who have come seem to feel that they have most effectively utilized the time given to the course. One late applicant for the 1951 session was most insistent. His plea was that his business had grown "so fast that he was scared". It was a fact that this man, along with two fellow veterans, had started a business just after the war which had had phenomenal growth. This man, the president, lacked much of the background of experience that ordinarily went with the presidency of a corporation the size of the one he was heading. Certainly if there are any immediate benefits to be derived from such a training program, these men are probably in the best position of all to take advantage of such an experience.

Some may wonder if a college education is necessary. By all means this is not a requisite. As a matter of fact, this factor does not weigh heavily in the selection process, although provision is made on the application form for the listing of degrees held. It may be of interest to point out that in last year's class of 85 members, 57% were holders of college degrees. Experience has taught that men without degrees take just as active a part as university men in class discussion, and it is no surprise to the instructors of the course that the non-university men stand out just as prominently so far as performance is concerned.

Finally, management can help in the selection process in an important way by taking an active interest in the plans for sending a representative to such a course. He should make provision for the complete transfer of all duties of such an individual and impress upon him that he should undertake the course with a determination to work hard. Anyone who has taken the course can vouch for the fact that the five weeks' program is likely to prove more vigorous than the routine at home by a considerable margin. It is also important that management foot the bill, maintain the man's salary while away, and see to it that the time away is not charged against his vacation time. This is an investment and to have it pay off it is believed that these steps are essential.

4. What is the pay-off on the company's investment in such a training program?

This is not an easy question to answer. It has already been explained that there is no conscious effort to develop specific techniques of administration. A sales manager, for example, should

not expect to learn in class the more advanced techniques of a sales manager. The whole emphasis in the course is on the development, through case discussion and study, of problem-solving skills. Thinking through a problem, simple as it may appear on the surface, is not easy. It has been a most stimulating experience to all the instructors of the course to find that the discussion of a problem invariably brings about substantial differences of opinion in the class and more likely than not, each point of view is capably defended in class discussion. For one thing, it tends to reduce the number of snap judgments of those who are abundantly endowed with self-confidence and it builds self-confidence in those who learn for the first time how to take part in a policy discussion.

The association of men from so many kinds of positions and businesses brings many satisfactions, and certainly tends to broaden the general outlook, particularly for one whose business experience has been centered in just one phase of the business (sales department for example). Dealing in problems in production, finance, or accounting represents a new and inspiring experience for him and will almost assuredly give him a broader point of view in the problems of administration.

At the Management Training Course at Western, the emphasis on the human relations of administration is pronounced. The goal in mind is greater skill in the problems of getting things done in a business organization and working effectively with people. Western has taken its cue from Harvard in this respect and not only uses the new text book developed for this purpose,* but also has looked to Harvard for staff men to handle these important class sessions. It is believed, therefore, that few men leave a session at Western without having a new and fresh point of view towards how management can develop a more effectively functioning organization.

It is probably too much to expect that a five-weeks' course can accomplish everything in the way of developing in a student a philosophy of management but certainly his experience, both in and out of the classroom, must make some lasting impression. It is submitted that if an executive training course can open the door just a little way towards a better understanding of the over-all problem of administration and improve in any degree the man's ability to think for himself, the investment involved will most assuredly be returned in the long run manyfold.

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* *The Administrator* by Glover and Hower.

Validated Advertising Research

John A. M. Galilee

Bitter competition among media representatives selling advertising space and the inadequacy of present research facilities have led to the development of improved techniques, including the introduction of validated research by the Canadian Advertising Research Foundation.

Mr. Galilee, who was the first President of the Canadian Circulations Audit Board (1937) and the first officer of the Canadian Advertising Research Foundation and is now Secretary of the Association of Canadian Advertisers and the CCAB and Secretary and Project Manager of the CARF, discusses the background, present status, and current undertakings of the latter organization.

MANAGEMENT is devoting increasing attention to advertising costs, and consequently the advertising manager is asking more and more questions of media. This demand has resulted, over the past few years, in some extraordinary feats of promotion by media attempting to uncover facts which they feel will be of greatest value to the buyer of advertising.

Competition in Media Publicity

At first advertisers were extremely grateful for these efforts, which were superbly bound in elaborate portfolios and, having regard to the advertising revenue involved, were fittingly printed for presentation to management. These promotional efforts attempted, in most cases, to prove what media had been trying to say to the advertising manager.

The general format for this type of survey was something like this:

Our Magazine in a recent national survey was rated best by 82% of readers.
Magazine "B" rated best by 10% of readers.
Magazine "C" rated best by 5% of readers.
Magazine "D" rated best by 3% of readers.

Now *Magazine "D"*, being at the bottom of the list, would be compelled to prepare a much more sumptuous survey in which it would be shown at the top. The result would be something like this:

This Magazine carried 874 pages of advertising in 1951.
Magazine "X" carried 523 pages of advertising in 1951.
Magazine "Y" carried 422 pages of advertising in 1951.
Magazine "Z" carried 320 pages of advertising in 1951.

With two such studies on his desk, the advertising manager had to decide whether he should by space in the one that had been rated best by some readers or in the magazine that had succeeded in selling the most advertising. It was truly a difficult problem.

An actual case appeared appeared in Canada not so long ago. One magazine stated that it had received the highest advertising lineage increase for 1950, naming other magazines with their increases and, in some cases, their decreases in advertising lineage. The magazine that had the lowest rating of all, in other words, the highest percentage decrease, realized that it had been displayed in a very bad light and proceeded to emphasize the fact that during the year in question it had realized its highest advertising revenue and enjoyed its greatest circulation.

In the summer of 1951, an attempt was made by a publisher of business publications in the United States to determine whether business magazines were adequately covering the standard industrial field and how to invest industrial advertising budgets with maximum effectiveness. The study was conducted with the cooperation of 18 leading industrial advertisers, each of whom sent a uniform questionnaire to a portion of its customers. Although the study uncovered much valuable information, the press report of this study emphasized "that dominant advertising in the pages of the leading business publications represents a most effective investment of advertising dollars". However, who has authoritatively listed the leading business publications, or on what basis might they be chosen? The answer to these questions is contained in practically every promotion letter, display, advertisement, etc., issued by all business publications. *They all claim to be leaders.* Self-searching in any industry is to be commended. However, impartial direction of such a study would not have permitted such a worn palliative as this to be presented as part of next year's promotional campaign.

Existing Facilities

Under such a system, of course, one cannot blame media for putting their best foot forward. After all, it is their money they are spending, and they might just as well "accentuate the positive", but the buyer of advertising is still left in the dark. Nevertheless, the buyer, even with the multiplicity of advertising claims, surveys, and studies, is infinitely better off today than he was prior to the

formation of the Audit Bureau of Circulations, which was the first validated advertising research ever to be introduced. In its relatively short history, the Audit Bureau of Circulations has brought definition and order to circulation claims. It has established and enforced a fundamental standard for the measurement of advertising values. True, it is but one standard and is based only on paid circulation. It *is* beneficial, although, of course, it carries certain drawbacks. As a result, all advertisers and their agencies depend upon the information which the ABC provides for their basic estimation of the printed media they select. First of all, ABC gives them a quantitative measure of a publication's worth, and this quantitative index, applicable to all publications upon which reports are made, serves as a common test of circulation value and rates.

The Canadian Circulations Audit Board in Canada provides basic information for controlled circulaton of business papers. It, also, has exacting standards and significant breakdowns. For example, its reports disclose the type of people to whom the publication is sent, broken down geographically. While the philosophies of paid and controlled circulation apparently are still miles apart, they have a common purpose—to give the advertiser information about the publication.

In the outdoor field, the Traffic Audit Bureau counts traffic passing posters and provides basic information which the advertiser may use to evaluate the effectiveness of a poster location.

The Bureau of Broadcast Measurement, now engaged in its fifth survey of Canada, provides the answers to the following questions on a uniform national basis: (1) Where do radio listeners live? (2) To what specific stations do they listen? (3) How often do they listen to each station? (4) When do they listen? These are all validated advertising research projects which have been introduced to provide the quantitative information so necessary for advertisers.

If each magazine, each outdoor plant owner, and each radio station had prepared an independent quantitative estimate, the results would have been chaotic. There would have been no standard of measurement. As it is, independent auditing organizations such as ABC, TAB, and BBM have been formed because under the buyers' direction an impartial but unbiased appraisal may be made. Validated advertising research primarily offers just such an appraisal. In spite of all the deficiencies of technique, and no one pretends that advertising techniques are 100% accurate, the result is a report which advertisers can believe and on which they do not have to apply any trick evaluation to come up with the right answer.

The Need for Additional Research

So far we have discussed media research, but there is a vast area of unexplored territory where research is practically non-existent. We refer to studies of individual advertisements. The challenge of all media is to achieve maximum circulation, sell the maximum amount of advertising at the highest possible rate, and still serve the public well. As media circulations rise, without doubt the effectiveness of advertising in such media is bound to increase. However, one of the greatly misunderstood and unappreciated facts about advertising is that there is relatively small amount of time and attention paid by the public to advertising. General speaking, everyone interested in advertising overestimates the public interest in it, particularly in his own advertising. A. W. Lehman, Managing Director of the Advertising Research Foundation, said in Toronto at the Association of Canadian Advertisers Annual Meeting in May 1951, "Many advertisers seem to think that the public is breathlessly waiting to read ads. For years publishers have expressed surprise whenever researchers have discovered that a small ad is read by only one percent of the people." He continued, "I believe that we can conclude that a golden opportunity awaits those people who can build advertisements and media that will reach more people."

The Audience Study of 11 Magazines in Canada (1949) shows that one magazine had nearly four times as many readers per copy as another. In other words, if both magazines had had 300,000 circulation, the top ranking magazine would have had 1,800,000 readers, while the bottom magazine would have had 500,000 readers. It is a purpose of advertising research to determine such readership figures. If they are to be determined by unbiased authorities or later validated, then the creators of advertising will have good reason for rechecking their technique and applying better methods.

Commercial advertising research organizations in Canada rank with the best in the United States. Unfortunately; much of the work that these organizations have been called upon to perform in Canada has been of a commercial nature. Perhaps it is analagous to the situation in which a surgeon shipwrecked on a desert island is forced to exercise his skill in carving the weekend roast. This may be exaggerating the case, but in general, many media studies that have been conducted in Canada could have contained far more controls if budgets had been larger. This is not to say that some excellent work has not been done in Canada; in fact, a great deal of pioneering work has been accomplished. Unfortunately, much of it is buried in the midst of claims that can only be called promotional in character.

Media owners have been quick to realize that the best promotion they can send to a client is that which is *believed* by the buyer of advertising. The success of validated research is therefore proportional to the amount of understanding that is received by the advertiser.

Describing the opportunities afforded by the expanded program of the Advertising Research Foundation (US) recently, Paul B. West, President of the Association of National Advertisers, said, "The need is widely recognized for new facilities in order to provide better measurement of advertising in some very important areas. There is no question about the need for better standards of measurement for various audiences reached by advertising. Specific problems and projects are of minor importance compared with the significance of the advertisers and agencies working shoulder to shoulder to coordinate their respective functions and thereby to justify and expand the social utility of advertising as a distributive mechanism."* Surely the same is true in Canada.

The Development of Validated Advertising Research in Canada

The development of validated advertising research in Canada came about spontaneously through the desire that an organization be set up to undertake the type of research required by advertisers and by agencies and to release it in an authoritative and acceptable form. The idea was first broached at a luncheon meeting of past-presidents of the Association of Canadian Advertisers in January, 1944 by H. H. Rimmer, who was later to become the first chairman of the Canadian Advertising Research Foundation in 1949.

By May, 1944, the plan had developed to the point where the ACA sought to obtain the cooperation of the Canadian Association of Advertising Agencies. What brought matters to a head was the request of the Agricultural Press Association that a Continuing Study of the Canadian Farm Market be undertaken. However, other matters such as the Victory Loan Campaign and war emergencies prevented any finalizing of plans to set up a permanent organization. It was proposed at that time to call the new organization The Canadian Institute of Market Research — a title which would have embraced a far wider field than that eventually covered.

In April, 1947, the Canadian Street Car Advertising Company (now Canadian Car and Bus Advertising Limited) made a request to the Association of Canadian Advertisers that a study being made in the street car advertising field in Toronto be validated. Un-

* Organization meeting of ARF participating subscribers, December 3rd, 1951.

fortunately, the ACA was unable to undertake this work. However, the Canadian Street Car Advertising Company developed for this purpose a committee of advertising and agency personnel and charged them with the responsibility of directing a Transportation Advertising Study that would be similar to those that had been conducted in the United States under the Advertising Research Foundation's direction. Although this study, due to the omission of some fine technical points, did not carry with it the imprint of the ARF, it was very similar to ARF studies and might be classified as the first validated advertising research study made in Canada.

The fact that the Transportation Advertising Study was conducted without benefit of official ACA action re-awakened the desire of those who had been interested in the initial discussion of 1944, and a determined effort was made to continue the good work that had been so abruptly terminated. Accordingly, in November, 1947, a joint meeting of the Directors of the Association of Canadian Advertisers and the Canadian Association of Advertising Agencies was called to secure advice from Advertising Research Foundation officers Stuart Peabody, Past-Chairman, and A. W. Lehman, Managing Director, regarding the method by which a body similar to ARF could be set up in Canada. From this meeting there developed in March, 1948 the Joint Committee for Advertising Research, which was later to become the Canadian Advertising Research Foundation. Immediately the Committee commenced the negotiations which before long developed into its first studies, (1) a *Transportation Advertising Study* conducted in Winnipeg in November, 1948, and (2) the *Audience Study of 11 Magazines in Canada,* which was conducted during 1949.

Through the continuing study of transportation advertising, advertisers and agencies were able to get validated reports on the patronage of street-car riders and their riding habits. The Winnipeg, Montreal, and Vancouver studies varied from the first Toronto study in that the 'controlled recognition' method of interviewing was used. Scores obtained in the pre-publication interviews were used to correct post-publication scores, thus providing a proved minimum audience score for each advertisement measured—in other words eliminating error factors.

The magazine audience study provided advertisers and agencies with comparative material never before obtained in either Canada or the United States. For the first time, advertisers and agencies could now examine one comparatively small report and get comparative data on total audience and readers per copy, penetration of each magazine, and its audience distribution by most important

classifications. Readers were also classified by possessions suggesting ther standards of living. The breakdown of the report gave advertisers knowledge that enabled them to estimate accurately the total audience reached by combined use of both English general magazines and French magazines, and general audience information on the 11 magazines.

Purpose and Organization of the CARF

The Canadian Advertising Research Foundation is a non-profit organization established for the purpose of promoting greater effectiveness in advertising and marketing through objective and impartial research. Through it, advertisers and agencies provide validated research.

The basic elements of the Foundation are the Board of Directors, Technical Consultant, Technical Committee, Project Manager and Secretary, and an Administrative Committee in charge of each project. The Board of Directors determines all matters of policy and finance; the Project Manager is in charge of operations and is responsible to the Board; the Technical Committee is appointed by the Chairman with the approval of the Board and is made up of qualified research men drawn equally from the advertiser and agency fields. The Administrative Committees vary in size according to the project to which they are assigned. Those in charge of media studies are tripartite in nature and are made up of representatives of advertisers, advertising agencies, and the medium involved in equal proportions.

Eligible Projects

Projects which are presented to the Foundation may be considered for acceptance provided they are potentially of a broad enough nature to have industry-wide significance.

It is understood that the results of any project, once it is accepted and undertaken by the Foundation, are to be published regardless of the nature of the findings. Of course, the techniques and procedures used must be considered valid and sound by the Foundation, and the findings must be considered of value to advertising. The results or findings of any project are published under the auspices of the Foundation and bear its imprint provided the Foundation has validated the methods, supervised the field work, and edited and approved the report and any interpretations contained therein. One additional safeguard is that the Foundation reserves the right to withhold approval of the use of its findings in promotional activity.

Procedure

Each new project is considered and examined for suitability by the Board or a committee or individual authorized by the Board. If considered suitable, it is referred to the Project Manager, who with the Technical Director studies it from the standpoint of practicability. If the project is considered practicable, the Board appoints an Administrative Committee. The Administrative Committee develops a set of objectives for the proposed study, which are then referred to the Board for approval. After the objectives are approved, the techniques and procedures to be used are then submitted to the Board for approval and action.

The operational functions of the Canadian Advertising Research Foundation in each of its continuing projects are as follows: (1) The development of objectives and specifications which are acceptable to the industry as a whole. (2) The supervision and validation of field work and tabulations. (3) The editing and writing of reports in an objective manner. (4) The proper publicizing of reports and projects to increase their use and effectiveness. (5) The control of distribution and use of reports and findings.

Future Developments

Buyers of advertising in all dimensions are tending more and more towards the utilization of facts obtained through validated advertising research. Advertising expenses as a part of the distributive cost will be under more and more searching scrutiny of management. Advertising will be called upon to justify itself in terms far more satisfactory than merely that "it is an intangible force". As Mr. Lehman has said, "Just as you as an advertiser, I as a researcher like to see advertising measured in the terms of ultimate sales. While we can gauge to some extent the effectiveness of advertising and media from enquiries, coupons, sales leads, etc., these alone are not sufficient or reliable."

Representatives of media which adopt validated research will have less reason to fear wild claims of competitors. They will be able to sell on the individuality of their own particular medium—surely one of the most potent factors of media selection. Advertisers, account executives, and space buyers will have at their disposal more and more tools to help them in their work.

Book Reviews

OPERATING RESULTS OF DEPARTMENT AND SPECIALTY STORES IN 1950,

by Malcolm P. McNair, Division of Research, Harvard Business School, Boston, 1951. 58 pp. $5.00.

and

OPERATING RESULTS OF LIMITED PRICE VARIETY CHAINS IN 1950,

by Esther M. Love, Division of Research, Harvard Business School, Boston, 1951. 26 pp. $2.00.

These annual studies are familiar to all students of marketing.

Both remain the finest surveys of their kind and important tools in market analysis. The present issues are similar to their predecessors, but have certain changes which will be important to some readers. Mr. McNair has this year included figures covering the middle half of the range on the items reported. Further, there is a comparison of spring and fall results.

Miss Love's study this year omits the survey on independent variety stores. It has a major condensation of its analytical sections, but certain special analyses have been dropped, such as reports on monthly inventories and sales, and operating results by store sales.

Canadian marketing men will wish that we had a Canadian counterpart of both studies.

—E. J. Fox
Professor and Director of Research
U.W.O. School of Business Administration

BASIC METHODS OF MARKETING RESEARCH,

by James H. Lorie and Harry V. Roberts. McGraw-Hill Co. of Canada, Ltd., Toronto, 1951. 453 pp. $8.10.

Let no one be misled; this is not an elementary textbook. It is a book that can be read with value by any thoughtful student—academic or practising—of market research, but it requires, and will reward, careful attention.

As the title suggests, the authors (both of the University of Chicago faculty) are concerned with "basic methods" and not with cataloging current techniques. These methods are analyzed with considerable skill and clarity. Both the treatment and the coverage provide essential nourishment for the junior in the market research area, and senior personnel will find the authors' emphasis on fundamentals an important antidote to the compromises necessitated by the practical demands of daily business. If professional standards are to be maintained, it is obvious that when we deviate from theoretically solid practice, we should be constantly aware that we are so deviating—that there is a better standard than that which we are able to reach on a day-to-day basis, and that at least part of our effort should be directed towards making this standard reachable. An evening spent with this book will serve as a helpful refresher.

There are important chapters, for example, on sampling (with a neat discussion of the probability vs. non-probability argument), the problems in securing information on behaviour (including an interesting section on the "why" questions), and the special problems of administering a market research agency.

There are many pointed examples, but authors who have gone to such pains to collect valuable data might well see that references to these are included in the index. Teachers of market research will hold in special affection the first authors to do a thoroughgoing job here.

Again, this is not a handbook for market researchers, but an analytical treatment of key questions and techniques. It is part of the "must" library —just as its concepts are part of the "must" equipment for those to whom market research is serious business.

—E. J. Fox
Professor and Director of Research
U.W.O. School of Business Administration

TAXATION IN CANADA

by J. Harvey Perry. Sponsored by the Canadian Tax Foundation. University of Toronto Press, Toronto, 1951. 409 pp.

Taxation in Canada is every bit as broad in coverage as its title implies. All phases of Dominion, Provincial and Municipal taxation are covered in considerable detail. A brief historical background of the various taxes is given, which in most cases attempts to show the need for revenues which brought on the imposition of new or increased taxes. A complete dis-

cussion of the procedures for the enactment of tax laws at the various levels follows a fairly detailed description of the various taxes and types of taxes, and finally the administration of tax laws is covered in some detail.

Mr. Perry, according to the dust jacket, has been associated with the Department of Finance for fifteen years, and his work was sanctioned by the Department. Quite likely, in addition to the sanction of the Department, he also had the Government's blessing, for while the book should be of interest to almost every Canadian, one suspects that author and sponsors were writing to an audience south of the border and across the Atlantic. This book should be "must" reading for every foreigner considering investment in Canada, for the whole story of how much of the return on their investment would be drained off in taxes is presented between the covers.

This is not a reference book. It will not supplement the various tax services in the offices of accountants, lawyers, etc. On the other hand, every tax practitioner should enjoy reading this book. Mr. Perry has done a highly commendable job of writing about a dry, technical subject in lively and interesting prose.

—Dwight R. Ladd
Lecturer, U.W.O. School of Business Administration

FUNDAMENTALS OF ACCOUNTING,
by Harry Wade. Third edition. John Wiley and Sons Incorporated, New York, 1951. 367 pp. $4.75.

This text was designed for a survey course in the fundamentals of accounting, and it covers this field with a minimum of the detailed and intensive discussions commonly found in first-year texts. This procedure, in some ways, enhances the value of the text to the student reader, for it gives him a lively introduction to accounting principles.

Basically the book may be divided into two sections. The first deals with the balance sheet, the profit and loss statement, and the accounting procedures leading to the formation of these statements, while the second gives a more detailed analysis of the balance sheet sections plus additional information on accounting for partnerships, corporations, and costs. The author's presentation is well balanced, characterized by a clear, easy-to-read style of writing, and well supplemented by illustrations.

In some ways the text may not be suitable for classroom use. There is no extensive coverage given to bookkeeping techniques. The author has chosen to limit his discussion of these techniques in order to emphasize the significance and limitations of financial statements.

At the end of each chapter are numerous questions designed primarily for classroom discussion, while at the end of the text more detailed questions for home assignments appear. Illustrations of published financial statements are included in the appendix to permit comparison of theory with practice.

—G. W. Harrigan
Trainee, Ford Motor Company of Canada

SALES MANAGEMENT,
by D. M. Phelps. Richard D. Irwin Inc., Chicago, 1951. 902 pp. $7.35.

During an early post-war meeting for sales managers, sponsored by the Toronto Advertising and Sales Club, a speaker asked those who had arrived at sales manager status since 1940 to raise their hands. A very large proportion of his listeners raised their arms. Recent years of easy selling have not been the best training for sales executives. Many of today's sales managers are young men, and this book will be of outstanding help to them in shouldering their responsibility.

D. M. Phelps has an excellent background for writing a book on sales management. Some former students in Western's Management Training Course will remember him as the Michigan Business Professor who handled the sessions on "product policy". Professor Phelps has trained many sales executives in his years as Professor of Marketing at the University of Michigan.

Many think a sales manager's job is largely one of recruiting and supervising a sales force. The modern sales executive has much more on his mind, for the responsibility of running the marketing side of a business involves many more problems. Many marketing decisions reach into top management levels, and the book reflects this situation. The main breakdown in contents falls along the following line: (1) planning the product, (2) investigation of the market, (3) pricing, (4) planning sales effort, (5) management of sales and service, (6) personnel, and (7) control of sales operation.

It is obvious that such topics as "Planning the Product" and "Investigation of the Market" have a particularly wide interest for marketing men today. Professor Phelps' background, incidentally, places him in an excellent position to deal with both of these topics. In 1947, Richard Irwin published his book *Planning the Product.* For many years he has been active in teaching marketing research. Phelps' material concerning the investigation of the market is exceedingly well presented. Any member of the management team will find it useful. Old "rules of thumb" are not being used with the enthusiasm of the pre-war years. More and more marketing policies are being shaped with the help of market research.

The book does have the drawback of being written primarily for an American audience. Canadian marketing men have grown used to using materials that were designed for the larger country. The work on the Clayton Act, Robinson-Patman Act, Brands and Trade Marks, and other government controls are, of course, of academic interest this side of the border.

One feature which is particularly appreciated is the extensive bibliography. The volume is a goldmine for anyone who wishes to build up a library in the field of sales management. There is a vast quantity of material available on this subject, and the author has done an excellent job of bringing his reader up to date on the literature in the field.

The book represents a distinct contribution of the field. It has balance, depth, and good coverage. It should be a useful addition to the libraries of students and practitioners.

—Walter A. Thompson
Associate Dean
U.W.O. School of Business Administration

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